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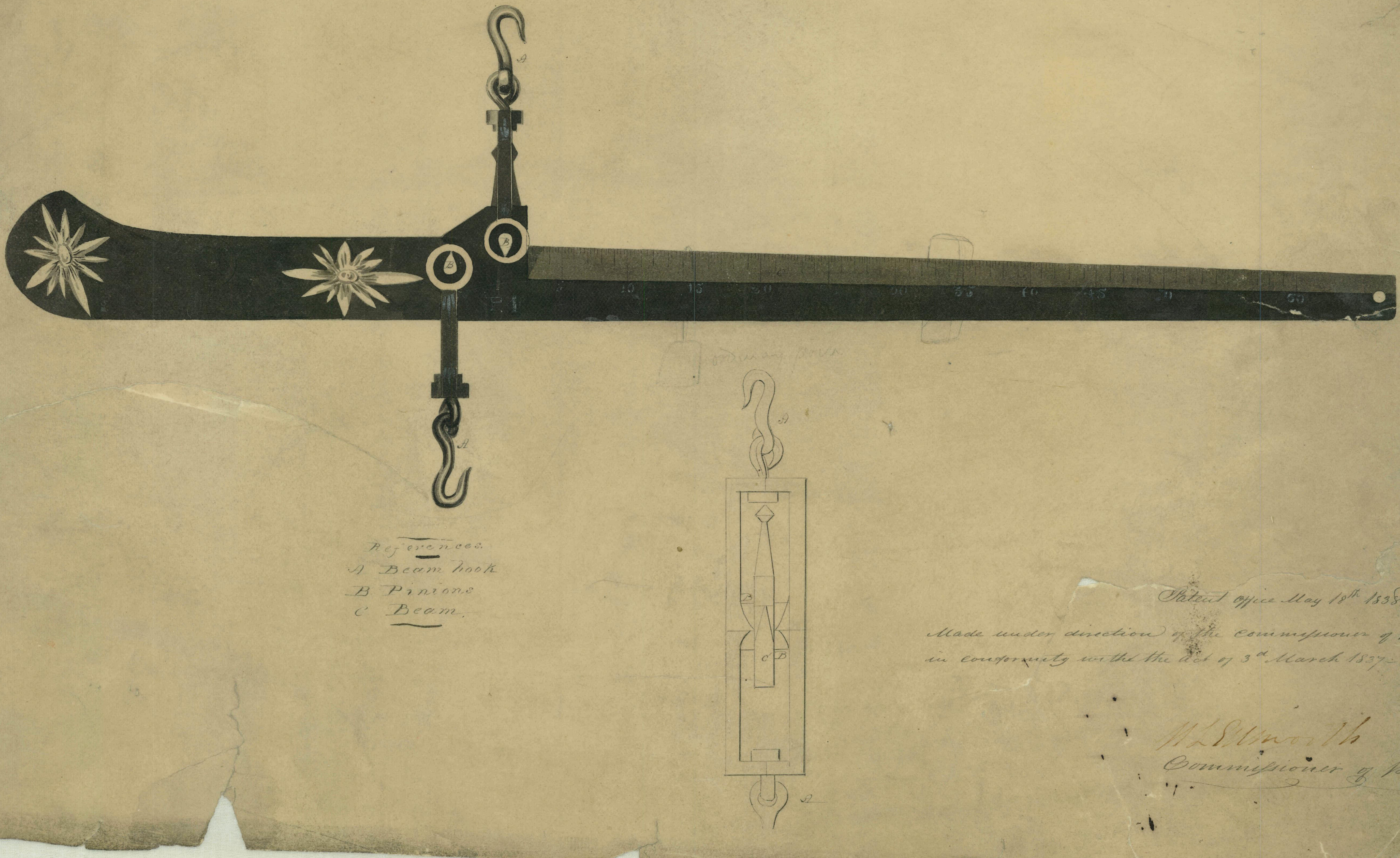
B. Dearborn's.

Vibrating Steelyards

Patented 14th Feby 1799.



A
B
B
B
C
5
10
15
20
30
35
40
45
50
60
ordinary poise
A
B
C
D
A

References.

A Beam hook
B Pinions
C Beam.

O/P

Patent office May 18th 1838.

Made under direction of the Commissioner of Patents in conformity with the Act of 3d March 1837.

H L Ellsworth
Commissioner of Patents

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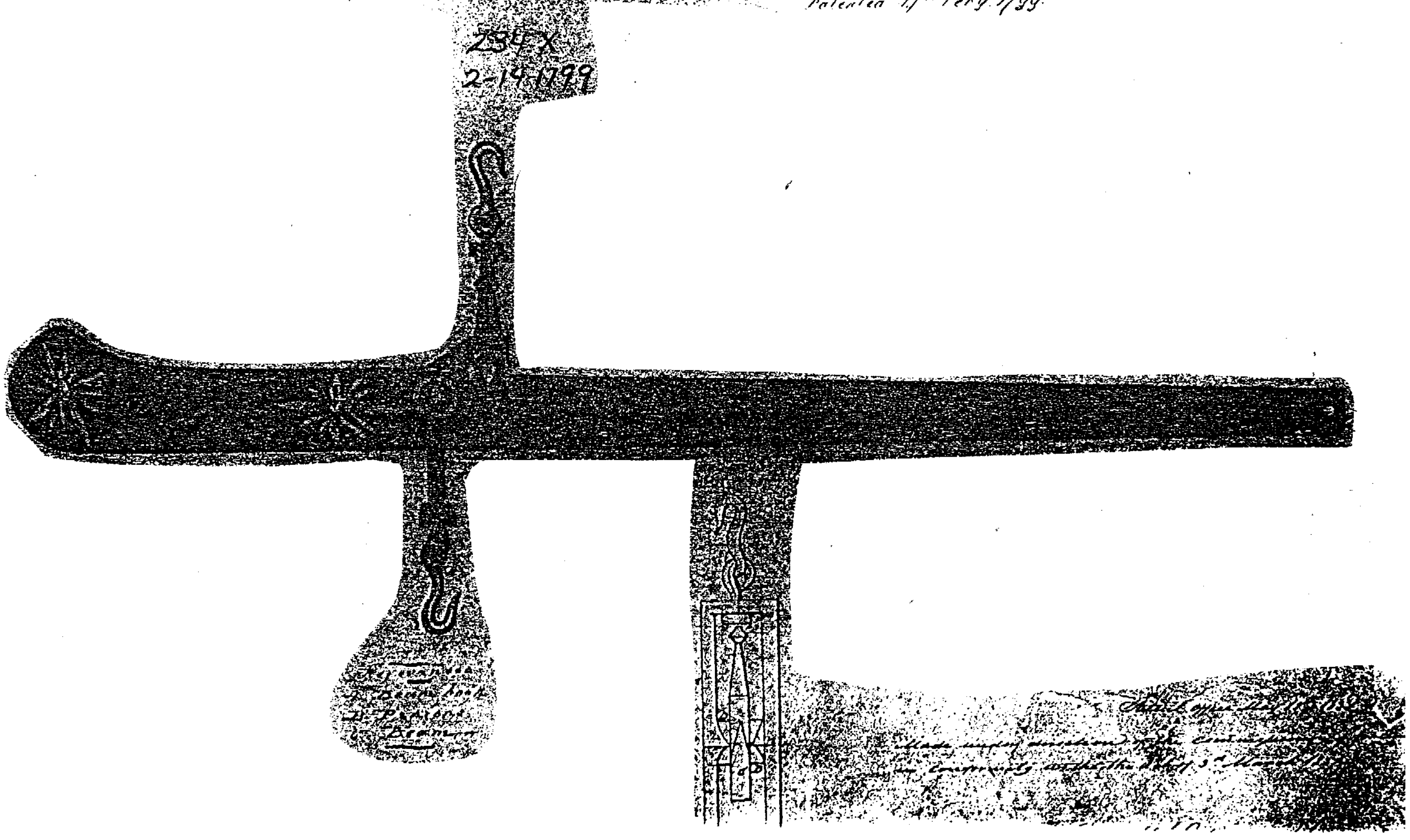
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Benjamin Dearborn of Massachusetts

Letters Patent Dated Feb. 14. 1799.

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Benjamin Dearborn himself of an improvement being a vibrating Steel yard or just Balance.

The vibrating Steel yard or just Balance is made partly of iron & partly of Steel of any dimensions requisite for weighing the smallest or largest articles from Gold coins to Hogsheads of Sugar &c. The beam hooks &c are of iron. The pivots or gudgeons and the circles in which they turn are of Steel well tempered. The Beam is graduated on one edge with notches on which two poises are hung or one only as occasion may require. The poises (or Peas as they are usually termed) may be made of lead, iron, Brass or any other ~~suitable~~ metal, or even of stone. If made of lead they should be guarded by a brass or other durable case to prevent a reduction of weight by wearing, or by those who use the instrument. All its parts should be preserved from corrosion. This Steel yard when constructed of the most convenient size for family use, will weigh from one pound to two hundred and fifty: and one of the poises must weigh two pounds and the other sixteen pounds, every notch on the beam producing a variation of two ounces with the small poise and one pound with the large, in Avoirdupoise weight. The poises might be made of other sizes but these are the most convenient. The long arm of the Beam is made sloping upward to nearly a sharp edge on which the notches are cut. On the two sloping sides are figures denoting the weight one side being marked for the small poise and the other for the large which must be added together when both poises are on. A Steel yard of this construction to weigh five hundred weight needs only to have its parts made stronger and the large poise to weigh thirty two instead of sixteen pounds, doubling all the numbers on the large side of the beam. The notches with the thirty two pound

poise

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will produce a variation of two pounds each and to obtain single pounds or ounces the small poise must be added and the sum of their weights taken as before. Other variations might be produced by the addition of more beams, but the above is the simplest construction.

As this steel yard a sufficient weight of beam is extended on one side of the centre of motion to counterbalance the arm on which the poises are to hang. the centre of motion is placed above the centre of gravity & in a line with the points of suspension. by these means the beam vibrates like a scale Beam. during the process of weighing an article &c and when the weight is off the friction being as much as possible reduced by terminating the friction part of the gudgeons with sharp edges and setting them in circles sufficiently large to prevent their backing on either sides on turning. A proof of the accuracy of this Balance is obtained by an experiment which can be made on no other beam hitherto invented. It is as follows. In weighing any article sufficiently heavy to balance both poises, (say 100 lbs.) the poises may be put on any two numbers, which added together will produce 100; for example one poise may be put at 90 and the other at 10. or one at 95 and the other at 5. One at 80 and the other at 20. One at 78 and the other at 22. and so on throughout the extent of the beam. and if the workmanship be accurate the numbers will perfectly correspond —

(Drawing not to be made as [illegible] and no signature) 750 words

(Granted Feb. 14. 1799)